

CABLE, POWER, 5 KV CROSS-LINKED
POLYETHYLENE INSULATED, CONCENTRIC NEUTRAL

NOTE: THIS SPECIFICATION AND ANY ACCOMPANYING SPECIFICATION OR BID CAN BE APPEALED.

YOUR APPEAL MUST BE SUBMITTED IN WRITING TO THE CITY PURCHASING DIRECTOR FOR ALL BIDS NO LATER THAN FIVE (5) WORKING DAYS PRIOR TO BID OPENING.

YOUR APPEAL MUST NOT ONLY IDENTIFY THE PROVISION, TERM OR CONDITION THAT IS CAUSING PROBLEMS, BUT ALSO YOUR PROPOSED ALTERNATE POSITION, TERM OR CONDITION AND BE SUPPORTED BY TECHNICAL DATA, TEST RESULTS AND OTHER INFORMATION.

CONTACT THE APPROPRIATE PURCHASING AGENT OR THE PROCUREMENT SPECIALIST FOR APPEAL FILING INSTRUCTIONS.

APPEALS RECEIVED LATER THAN FIVE (5) WORKING DAYS PRIOR TO BID OPENING OR WITHOUT SUFFICIENT DETAILS **WILL NOT BE CONSIDERED.**

NOTICE
AN APPEAL FEE OF THAT IS 1% OF THE ESTIMATED DOLLAR AMOUNT
OF THIS CONTRACT IS REQUIRED WITH A BID SPECIFICATION APPEAL. THIS FEE IS A
PREREQUISITE FOR PURSUING THE APPEAL AND
MUST ACCOMPANY THE APPEAL.
THE APPEAL FEE WILL BE RETURNED IF THE APPEAL IS UPHELD.

CAUTION: A BID THAT DOES NOT FULLY COMPLY WITH ALL OF THE PROVISIONS, TERMS, AND CONDITIONS OF THIS OR ANY ACCOMPANYING SPECIFICATION AND BID, MAY BE DETERMINED AS A COUNTEROFFER AND MAY RESULT IN THE BID BEING REJECTED FOR NON-RESPONSIVENESS.

- I. GENERAL: It is the intent of this specification to describe the minimum requirements for single conductor power cable to be purchased by the City of Milwaukee for the DPW-Infrastructure Services-Traffic Engineering and Electrical Services Section. All parts or features not specifically mentioned, which are necessary or which are regularly furnished in order to provide a complete unit, shall be furnished by the successful bidder at the bid price and shall conform in strength, quality of material and workmanship to that usually provided by the engineering practice indicated in this specification.
- II. WARRANTY: The seller and/or the manufacturer warrants that the goods sold hereunder will be of merchantable quality, will conform to applicable specifications, drawings, designs, samples or descriptions, will be free from defects in material and workmanship and will be fit for the particular purpose intended by the buyer.
 - A. Under this provision the seller and/or manufacturer agrees to repair or replace without cost during the warranty period, any part, feature or product found to be defective or unsuitable for the services intended.
 - B. This warranty shall be one year after date of installation not to exceed two years from date of delivery.
 - C. Vendor should provide a complete warranty statement confirming their acceptance of the above with their bid or within three (3) working days of receiving a request.

NOTE: IF NOT PROVIDED WITH THE BID, BUT REQUESTED BY THE DOA, BUSINESS OPERATIONS DIVISION, PROCUREMENT SERVICES SECTION, THE WARRANTY STATEMENT MUST BE FURNISHED WITHIN THREE (3) WORKING DAYS OR THE BID WILL BE REJECTED.

III. AWARD AUTHORITY:

- A. The City Purchasing Director will be the sole judge of the quality and suitability of the equipment, materials and/or services offered in its determination of the successful bidder for all bids.

IV. UNSUITABLE EQUIPMENT: Bids will not be considered for equipment or material which has previously failed to perform satisfactorily the functions described herein.

V. TECHNICAL REQUIREMENTS: Unless otherwise specified, this cable shall meet all applicable requirements of the Insulated Cable Engineers Association (ICEA) publications and #S-66-524. Where references are made to specifications of the American Society for Testing and Materials (ASTM), the requirements shall be the latest revisions of those specifications.

- A. SCOPE: This specification covers 1 #8AWG single conductor cross-linked polyethylene insulated power cable with a concentric neutral. This cable shall be rated at 5KV phase to phase and will be used on a single phase solidly grounded neutral distribution system. This cable shall be suitable for direct burial or installation in duct.

- B. CONDUCTOR: The copper conductor shall be a #8 solid "American Wire Gauge", annealed copper, in accordance with part 2.1.1 of ICEA publication #S-61-402.

- C. INSULATION: The insulation shall be cross linked thermosetting polyethylene (90°C) conforming with part 3. The insulation shall have a nominal thickness of 0.10". The minimum thickness of the insulation at any point shall not be less than 90 per cent of the nominal thickness, shown in table 3-1. (ICEA publication #S-66-524)

D. INSULATING SHIELDING AND PROTECTIVE JACKET:

1. The insulation shall be covered with an extruded semi-conducting polyethylene jacket of not less than 0.050" thick extruded directly over the insulation. It shall be applied in such manner as to be in intimate contact with the outer surface of the insulation and shall be easily removed. The jacket, when removed, shall not leave any conducting particles or other residue on the surface of the insulation. The jacket shall be suitable for direct burial in wet locations.

Each cable assembly shall have a durable identification on the outside of the jacket which will include the manufacturer's name, year of manufacture, and the words "SEMI-CONDUCTING" all at intervals not to exceed 3 feet.

- E. CONCENTRIC NEUTRAL: The concentric neutral conductors shall consist of 7 to 10 #16AWG coated, annealed copper wires per ASTM standard B-33 for tin or ASTM standard B-189 for lead- tin alloy. The concentric conductors shall be applied in a tight spiral wrap around the semi-conducting protective jacket, in such manner that it will not slip off under normal conditions. There is to be no tape or outer jacket over the neutral conductors.

- F. TESTS: The A.C. test voltage shall be 13 or 35KVDC per note 3. The minimum corona extinction level shall be 3.2KV. The cable shall be tested in accordance with the applicable requirements of part 6. (ICEA publication #S-66-524)
- G. REELS:
1. Non-returnable Reels: The cable shall be shipped on sturdy non-returnable reels with metal reinforcing plates on each side of a minimum 3 inch diameter arbor hole, the cost of which shall be included in the unit prices bid, and shall be delivered in a vertical position so that the spindle hole is clear for lifting by means of a thru pipe.
 2. Size: The reels shall not be more than 44" wide over the widest portion and not more than 60" in diameter, except in larger circular mill size cables where footage per reel cannot be supplied on this limited reel size. In such cases, larger reels will be acceptable in order to accommodate scheduled cable footage per reel.
 3. Contents: Each length of cable as specified in the Invitation to Bid shall be placed on a separate reel holding the full length of such cable.
 4. Protection of Ends: Before shipment, the ends of all wire and cable shall be carefully sealed to protect the insulation from moisture. Both ends of the wire or cable shall be accessible for testing, but shall be covered and protected from injury.
 5. Marking: Each reel shall have the serial reel number, weight, length, item number, number of conductors in cable, name of the maker and purchaser's order or inspection number plainly and indelibly marked on a strong tag securely fastened to the wire or cable, and also stenciled on the outside of each head of the reel.
 6. Construction: Reels shall be all wood construction. Plywood is unacceptable.
 - a. Wood shall be standard grade or better white pine.
 - b. Reel heads (flanges) shall be constructed out of a double layer of 1 inch x 6 inch boards cross plied together.
 - c. Reel drum shall be constructed out of 5/8 inch thick x 1-1/4 inch wide boards which are molded to form a perfectly round drum.
 - d. Reel drum board shall be fastened to a wooden drumhead approximately 1 inch thick.
 - e. Reel heads and drum shall be fastened together with a minimum of four (4) 1/2 inch steel rods, threaded on both ends with heavy duty nuts and recessed washers.
- H. LENGTHS: Ten percent of the reels of any one item may be shipped in random length of not less than 50% of the specified nominal length. This tolerance is permitted so that the cable manufacturers may avoid brazing together lengths of copper conductor. All conductors shall be free from brazes or splices.
- I. DELIVERY: All deliveries are to be made to the Traffic Engineering and Electrical Services Division at 1540 W. Canal Street, Milwaukee WI 53233. Delivery is accepted between the hours of 7:30 AM and 2:30 PM, Monday through Friday only, except

Holidays. Cable reels shall be delivered on an open sided flatbed trailer to allow for fork lift access. A dock is not available at this location